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Original article

Body image dissatisfaction and depression in postbariatric patients is associated with less weight loss and a desire for body contouring surgery

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Abstract

Background: Overhanging skin in postbariatric patients leads to a negative body image. In patients with obesity, negative body image is related to more depressive symptoms and a higher weight. This relationship might also be important in postbariatric patients, because improvement of body image via body contouring surgery (BCS) could lead to better weight loss results.
Objectives: To evaluate the relationship between body image, depressive symptoms, and weight loss in a postbariatric population, focusing on desire for BCS.
Setting: Outpatient clinic.
Methods: One thousand twenty-four primary bariatric surgery patients were contacted, and 590 patients agreed to participate and filled in online questionnaires regarding body image (Body Shape Questionnaire and Multidimensional Body-Self Relations Questionnaire-Appearance Scales) and depression (Beck Depression Inventory-II). Differences between patients who had BCS, patients who desired BCS, and patients who did not desire BCS were studied. The mediating role of body image in the association between percentage total weight loss and depressive symptoms was assessed via a 2-mediator model.
Results: There was a desire for BCS in 368 patients (62.4%); these patients had significantly lower scores on appearance evaluation and body image satisfaction scales and showed more depressive symptoms. Patients without a desire (n = 157, 26.6%) had lowest rates of depressive symptoms and a more positive body image. Sixty-five patients (11.0%) had undergone BCS. In the patients who desired BCS, percentage total weight loss was negatively affected by depressive symptoms via appearance evaluation and body-area satisfaction.

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Conclusions: There are striking differences regarding body image satisfaction and depressive symptoms when comparing postbariatric patients and without desire for BCS. Body image satisfaction is associated with less depressive symptoms in all postbariatric patients. In patients who desired BCS, body image is one of the mediators of the relationship between percentage total weight loss and depressive symptoms. Therefore, body image should be taken seriously and be part of outcome assessment in postbariatric patients. (Surg Obes Relat Dis 2018;14:1507–1515.)

Keywords: Body contouring surgery; Bariatric; Body image; Depression; Total weight loss

The positive effects of bariatric surgery, including significant weight loss and resolution of co-morbidities, have been well established [1,2]. However, the massive weight loss can lead to excess skin, which may negatively affect patients' well-being by causing medical, functional, and psychological problems [3–6]. Body contouring surgery (BCS) is the only treatment for restoration of the contour of the body and is desired by a large part of the postbariatric population [6–14]. Yet, only a small portion (18%–33%) of postbariatric patients actually undergoes BCS; the high costs of these procedures are considered a major reason for this reluctance [6,8,12,15].

After BCS, patients show improved functional status, better body image, and higher quality of life, both in the short and long term [12,16–26]. More importantly, BCS patients have better weight loss maintenance than patients who do not undergo BCS after bariatric surgery [14,21,27]. Why BCS results in better weight loss maintenance has never been studied.

Weight and depression are strongly correlated in patients with obesity (higher weight indicating more depressive symptoms), and several studies found that this relationship is at least partly mediated by body image [28–33]. In obese patients, there are more depressive symptoms when body image satisfaction is low. Depressive symptoms, in turn, are known to negatively affect weight [14,21,28–31,34].

In postbariatric patients extensive overhanging skin leads to a negative body image and could thereby lead to (more) depressive symptoms. However, research regarding the relationship between body image and depressive symptoms in postbariatric patients is sparse. One study assessed body image in postbariatric patients with complaints of excess skin, and it was found that a negative body image was related to more depressive symptoms and secondarily to weight regain [34]. Although this study was carried out in a relatively small sample, it does show that body image might play an important role in the well-being of postbariatric patients. It is unknown, though, whether this is true for all postbariatric patients. Do patients who desire BCS differ from patients who have no desire for BCS with regard to body image? In addition, to the best of our knowledge, no studies have been conducted assessing the role of body image in the relationship between weight loss and depressive symptoms in a postbariatric population.

Therefore, the goal of this study was to evaluate body image, depressive symptoms, and weight loss in a postbariatric population, and to compare patients who had BCS with patients who desire BCS and patients who do not desire BCS on these variables. Second, we assessed the mediating role of body image in the relationship between weight loss and depressive symptoms for these groups.

We hypothesized that the relationship between weight loss and depressive symptoms would be partly mediated by body image in the population who has not undergone BCS. This hypothesis was based on previous research in patients with obesity, in which the relationship between weight and depression was partially mediated by body image [28–33]. In the population who already had BCS, we expected a better body image and no relationship between weight and depressive symptoms.

Methods

Standard treatment

Patients were all treated at the Nederlandse Obesitas Kliniek (Dutch Obesity Clinic). The Nederlandse Obesitas Kliniek is the largest outpatient clinic for treatment of bariatric patients in the Netherlands. All patients follow pre- and postoperative group counseling by a specialized multidisciplinary team consisting of a dietician, a psychologist, a physical therapist, and a medical doctor. The data used for this study were part of a large cross-sectional study. The Psychology Ethics Committee of Maastricht University approved the study (ECP 06_11_2014).

Patient selection

Patients were selected from a prospective database. Because BCS is usually performed 12 months after stabilization of the bodyweight, patients who had a primary bariatric procedure 2 to 3 years before the start of the study were selected for participation. The study began on January 2, 2015, to ensure follow-up was at least 2 years; patients who had undergone a bariatric procedure between October 2011 and November 2012 were selected.

Patients were excluded if weight measures before and/or 1 year after bariatric surgery were not available.

Table 1
Overview of questionnaires used with score range and explanation of scoring.

Body Shape Questionnaire		
Total score	16–96	Higher score means more concerns about shape
Multidimensional Body-Self Relations Questionnaire-Appearance Scales		
Appearance evaluation	1–5	Higher score indicates more positive evaluation
Appearance orientation	1–5	Higher score indicates more investment
Body-area satisfaction scale	1–5	Higher score indicates more satisfaction
Overweight preoccupation	1–5	Higher score indicates more preoccupation
Self-classified weight	1–5	Higher score indicates higher weight
Beck Depression Inventory II		
Total score	0–63	Higher score means more depressive symptoms

There were 1334 patients eligible for inclusion in the study; 1024 patients were successfully contacted by electronic invitations. A total of 689 patients responded and 590/1024 patients (58%) agreed to participate, signed informed consent, and were included in the study.

Data collection

Demographic characteristics and weight measurements before and at 12 and 24 months after bariatric surgery were collected from the prospective database. Body mass index (BMI), change in BMI, percentage total weight loss (%TWL), and percentage excess weight loss were calculated according to current guidelines [35].

Results for the questionnaires were electronically collected after patients agreed to participation.

Questionnaires

Body contouring surgery

To assess desire for BCS, patients were asked whether they wanted to undergo plastic surgery because of overhanging skin. It was also assessed if they had already undergone plastic surgery for overhanging skin. Current weight was also assessed here.

Body image

Body Shape Questionnaire

The Body Shape Questionnaire was used to evaluate concerns about body shape [36]. This questionnaire consists of 16 questions, to be answered on a 6-point Likert scale, resulting in a total score ranging from 16 to 96 points. A higher score means more concerns about body shape (Table 1). The Body Shape Questionnaire has been used for both obese and postbariatric population and has shown good validity and reliability [36–38].

Multidimensional Body-Self Relations Questionnaire-Appearance Scales

The Multidimensional Body-Self Relations Questionnaire-Appearance Scales gives insight into body image concerns and has good validity and reliability [39,40]. The Multidimensional Body-Self Relations Questionnaire-Appearance Scales have been used in both bariatric and body contouring populations [23,32,41]. This questionnaire consists of 34 items, which are scored on a 5-point Likert scale, and scores for each subscale range from 1 to 5 points (Table 1). The 5 subscales are as follows: (1) appearance evaluation: assesses feelings of physical attractiveness (higher score indicates more positive feelings of attractiveness); (2) appearance orientation: assesses extend of investment in appearance (higher score indicates more investment); (3) overweight preoccupation: reflects the preoccupation with overweight cognitions (higher score indicates more preoccupation); (4) self-classified weight: reflects how the patient perceives and labels weight (higher score indicates higher weight); and (5) body-area satisfaction scale: satisfaction with several aspects of appearance (higher score indicates more satisfaction).

Depressive symptoms

The Beck Depression Inventory-II was used to evaluate depressive symptoms [42,43]. The questionnaire consists of 21 items, and each item can be scored from 0 to 3 points (Table 1). A score <13 indicates no or minimal depressive symptoms, a score between 14 and 19 indicates light symptoms, a score between 20 and 28 indicates moderate symptoms, and a score >29 indicates severe depressive symptoms [42].

Statistical analyses

Descriptive statistics were calculated to summarize baseline characteristics. Independent samples t tests and χ^2 tests were used to compare the characteristics of the patients who were included and the patients who were excluded to ensure this did not influence the results.

Subsequently, the included population was divided into the following 3 groups: (1) patients who already underwent BCS (BCS group), (2) patients who desired BCS (D

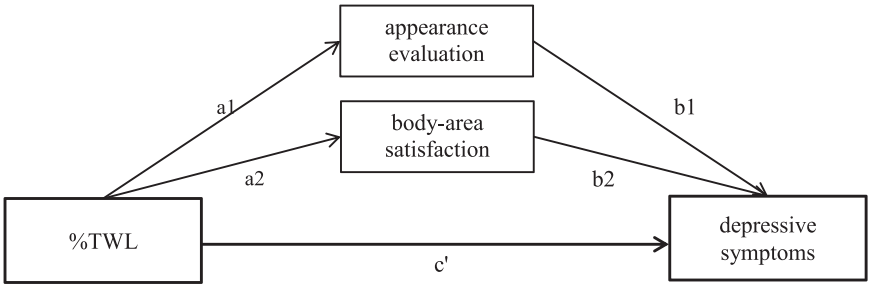

Fig. 1. Two-mediator model of the relationship between percentage of total weight loss (%TWL) and depressive symptoms.

group), and (3) patients without a desire for BCS (ND group).

Differences in age, weight change before and after bariatric surgery, body image, and depressive symptoms between the 3 groups were calculated using one-way analysis of the variance. Sex and type of bariatric surgery were compared using a χ^2 analysis.

Subsequently, the relationship between depressive symptoms and %TWL was assessed with a mediation analysis. A mediation analysis assesses how an independent variable affects a dependent variable, through intervening variables (the mediators) [44]. In this study, the mediating role of body image on the relationship between %TWL and depressive symptoms was assessed via a 2-mediator model (see Fig. 1).

The appearance evaluation scale and body-area satisfaction scale were chosen as mediators for 2 reasons: first, because these scales reflect how patients feel about their bodies, lower scores reflect a more negative body image [39]; second, because these variables are known to change after bariatric surgery and BCS [20,23,32,45].

Pearson's correlations between %TWL, depressive symptoms, and body image (appearance evaluation and body-area satisfaction scale) were calculated for each of the groups. In case of significant correlations, a mediation analysis was conducted for that specific group. Baseline BMI and sex were included as covariates in this analysis. Bootstrapping was used to obtain confidence intervals [44]. Mediation was considered to have occurred if the 95% bias corrected confidence intervals for the effects generated did not contain zero. Findings of other analysis were considered statistically significant if $P < .05$. All analyses were performed using SPSS, version 23 (IBM Corp., Armonk, NY, USA)

Results

Study population

There were no significant differences between the included (n = 590) and excluded (n = 744) patients with regard to age, follow-up time since bariatric surgery, baseline BMI, and BMI at 12 and 24 months after bariatric surgery. There were significantly more females in the included population (81.2% compared with 75.3%; $P = .01$).

Mean age of the included patients was 47.7 years. Before bariatric surgery, the mean BMI was 45.4 kg/m^2. Most patients had undergone a RYGB (n = 511, 86.9%), 66 patients (11.2%) had undergone a gastric sleeve, and 11 patients (1.9%) had undergone laparoscopic adjustable banding. Mean BMI was 31.8 kg/m^2 at 12-month follow-up and 31.1 kg/m^2 at 24-month follow-up. At the time of the current survey the mean follow-up was 32 months, BMI was 30.7 kg/m^2, and TWL was 32.1%.

Patient characteristics

A total of 65 patients (11.0%) had undergone BCS (BCS group). There was a desire for BCS in 368 patients (62.4%, D group), and no desire for BCS in 26.6% of the patients (n = 157, ND group).

The ND group contained the lowest rate of females (68.2%, $P < .001$), compared with the D group (84.5%) and the BCS group (93.8%; Table 2). Age, follow-up time, and type of bariatric procedure were not significantly different between the 3 groups. BMI before bariatric surgery was 46.2 kg/m^2 in the D group, which was significantly higher compared with the ND group (mean: 44.1 kg/m^2, $P = .001$) and the BCS group (mean: 43.9 kg/m^2, $P = .011$). Patients who underwent BCS had the lowest BMI at all follow-up moments. Weight loss was higher in the D group compared with the ND group: change in BMI 15.1 kg/m^2 versus 12.8 kg/m^2 ($P < .001$) and TWL 32.6% versus 28.9% ($P < .001$). In the BCS group, weight loss was highest (TWL 36.8%).

Body image

The mean Body Shape Questionnaire score was 49.5 in the D group, which was significantly higher compared with the BCS group (40.2; $P < .001$) and the ND group (30.1; $P < .001$; Table 3). The difference between the BCS group and the ND group was also significant ($P < .001$).There was a marked concern about shape (score >66) in 15.7% of the D group. In the ND group 1.4% had a

Table 2
Demographic characteristics of the total population and of the 3 groups, presented in mean ± standard deviation or percentage (n).

	BCS group (n = 65)	D group (n = 368)	ND group (n = 157)
Females, % (n)	93.8 (61)*	84.5 (311)†	68.2 (107)‡
Age, yr	45.0 ± 11.4	47.1 ± 10.6†	49.8 ± 10.5‡
RYGB, % (n)	85.9 (55)	87.8 (323)	84.7 (133)
FU, mo	32.6 ± 3.7	32.3 ± 3.9	32.4 ± 3.7
BMI before BS, kg/m^2	43.9 ± 6.1*	46.2 ± 5.8†	44.1 ± 6.3
BMI 12-mo FU, kg/m^2	29.8 ± 5.3*	32.2 ± 5.2	31.6 ± 5.7
BMI 24-mo FU, kg/m^2	28.5 ± 4.6*	31.2 ± 5.4	31.9 ± 6.0‡
Current BMI, kg/m^2	27.6 ± 4.5*	31.1 ± 5.6	31.3 ± 5.6‡
ΔBMI, kg/m^2	16.3 ± 5.1	15.1 ± 4.9†	12.8 ± 4.6‡
Current EWL, %	89.1 ± 20.1*	73.9 ± 22.6	69.9 ± 24.7‡
Current TWL, %	36.8 ± 8.0*	32.6 ± 9.1†	28.9 ± 9.3‡

BCS = body contouring surgery; BCS group = patients who already underwent BCS; D group = patients who desired BCS; ND group = patients without a desire for BCS; RYGB = Roux-en-Y gastric bypass; FU = follow-up; BMI = body mass index; BS = bariatric surgery; ΔBMI = difference between current BMI and BMI before bariatric surgery; EWL = excess weight loss; TWL = total weight loss.

* Significant difference compared with D group, $P < .05$.

† Significant difference compared with ND group, $P < .05$.

‡ Significant difference compared with BCS-group, $P < .05$.

Table 3
Body image and depressive symptoms of the 3 groups, presented as mean scores ± standard deviation.

	BCS group (n = 65)	D group (n = 368)	ND group (n = 157)
Body Shape Questionnaire*	40.2 ±18.4†	49.5 ±16.9‡	30.1 ±12.8§
MBSRQ-AS			
Appearance evaluation¶	3.23 ± .67†	2.58 ± .72‡	3.26 ± .58
Appearance orientation**	3.58 ± .53	3.74 ± .56‡	3.27 ± .61§
Body-area satisfaction scale¶	3.14 ± .68†	2.68 ± .56‡	3.22 ± .57
Overweight preoccupation*	2.89 ±.76	2.98 ± .83‡	2.41 ± .79§
Self-classified weight*	3.24 ± .64†	3.86 ± .74	3.76 ± .73§
Beck Depression Inventory II*	12.1 ± 11.0	14.6 ± 11.8‡	9.1 ± 11.0

BCS = body contouring surgery; BCS group = patients who already underwent BCS; D group = patients who desired BCS; ND group = patients without a desire for BCS; MBSRQ-AS: Multidimensional Body-Self Relations Questionnaire-Appearance Scales.

† Significant difference compared with D-group, $P \leq .005$.

‡ Significant difference compared with ND group, $P \leq .001$.

§ Significant difference compared with BCS group, $P \leq .001$.

¶ Higher score is positive (positive body image, more focus on appearance and better satisfaction with body).

* Higher score is negative (more concerns about shape, more depressive symptoms, more preoccupation, and higher weight).

marked concern, and in BCS group this was 10.0% of the population ($P < .001$).

For the Multidimensional Body-Self Relations Questionnaire, patients in the D group had a mean score of 2.58 on appearance evaluation, which was significantly lower than the ND group (mean 3.26, $P < .001$) and the BCS group (mean 3.23, $P < .001$; Table 3). They also had a significantly lower average score on the body area satisfaction scale at 2.68 versus 3.22 in the ND group and 3.14 in BCS group ($P < .001$ in all). Patients with no desire for BCS scored lowest on the appearance orientation (mean score 3.27) and overweight preoccupation (mean score 2.41). Patients in the D group had the highest score (mean 3.86) on the weight classification; the BCS group scored significantly lower with a mean score of 3.24 ($P < .001$).

Depressive symptoms

The Beck Depression Inventory-II (BDI) score was higher in the D group (14.6), compared with the ND group (9.1, $P < .001$; Table 3). The BCS group had a mean score of 12.1; this was not significantly different from either of the other groups. Subsequently,

Table 4
Mediation effect of appearance evaluation and body-area satisfaction on the association between depression and percentage total weight loss in the desire group.

		Product of coefficients	Bootstrapping Bias corrected 95% confidence interval	
	Coefficient	Standard error	Lower	Upper
Indirect effects				
Appearance evaluation	−.04*	.02	−.10	−.01
Body-area satisfaction	−.11†	.04	−.20	−.04
Total	−.15†	.04	−.23	−.07
Contrast				
Appearance evaluation versus Body-area satisfaction	.07	.05	−.02	.18

1000 bootstrap samples; analysis adjusted for body mass index before bariatric surgery and sex.
* $P < .01$.
† $P < .001$.

BDI scores were divided into 4 categories, ranging from mild to severe depressive symptoms. In the D group 26.9% had moderate to severe depressive symptoms compared with only 10.4% in the ND group and 28.3% in the BCS group ($P < .001$).

Correlations

In the patients with a desire for BCS, %TWL correlated negatively with depressive symptoms ($r = -.196$, $P < .001$) and positively with appearance evaluation ($r = .159$, $P = .003$) and body area satisfaction ($r = .223$, $P < .001$). This means that more weight loss is associated with less depression and a more positive body image. Appearance evaluation and body area satisfaction both correlated negatively with BDI ($r = -.361$, $P < .001$ and $r = -.439$, $P < .001$, respectively), meaning that a more negative body evaluation is associated with more depressed symptoms.

In the ND group, %TWL was significantly (positively) related to appearance evaluation ($r = .227$, $P = .006$), meaning that more weight loss was significantly associated with a more positive appearance evaluation. There were no significant correlations of %TWL with BDI and body area satisfaction, meaning that weight loss was not associated with depressive symptoms and body area satisfaction. There was a negative correlation between appearance evaluation and BDI ($r = -.398$, $P < .001$) and body area satisfaction and BDI ($r = -.432$, $P < .001$); lower appearance evaluation and lower body area satisfaction were related to more depressive symptoms.

In the BCS group, there was a significant correlation of %TWL with body area satisfaction ($r = .302$, $P = .019$), meaning that more weight loss is associated with higher body area satisfaction. No significant correlation of %TWL with appearance evaluation or BDI was found, so the weight loss was not related to appearance evaluation or depression in this group. Again, there was a significant, negative correlation between the appearance evaluation and BDI ($r = -.519$, $P < .001$) and body area satisfaction and BDI ($r = -.557$, $P < .001$).

Mediation effect of body image

Because in the D group all variables (%TWL, depressive symptoms, appearance evaluation, and body area satisfaction) were significantly correlated, a mediation analysis was conducted for this group. The total indirect effect of %TWL on depressive symptoms was −.15, which leads to the rejection of the null hypothesis that the total indirect effect is 0 ($P = .003$). Therefore, depressive symptoms are partly, via the mediators of appearance evaluation and body-area satisfaction, influenced by %TWL. This means that a higher %TWL results in less depressive symptoms, via more positive feelings of attractiveness and higher body-area satisfaction. The specific indirect effect is −.04 through appearance evaluation and −.11 through body-area satisfaction (Table 4). Of the mediators examined, both appearance evaluation ($P = .003$) and body-area satisfaction ($P < .001$) were important mediators. This relationship was not influenced by baseline BMI ($P = .267$) or sex ($P = .996$).

Discussion

The present study assessed body image, depressive symptoms, weight loss, and the relationship between these factors in a large postbariatric population, focusing on the desire for BCS. Our results show striking differences among patients who had BCS, patients who desired BCS, and patients who did not desire BCS. Patients with a desire for BCS had a more negative body image than patients who already had BCS and patients without a desire for BCS. The patients with a desire also showed more depressive symptoms than patients without a desire. Moreover,

in the population with a desire for BCS, a higher %TWL was related in less depressive symptoms via more positive feelings of attractiveness and higher body-area satisfaction. Thus, the relationship between weight loss and depressive symptoms was partly explained by body image. In all patients, a better body image was related to less depressive symptoms.

There was a desire for BCS in >60% of the study population, which is in concordance with previous research [3,6–9]. The patients who desire BCS showed a higher prevalence of depressive symptoms compared with patients who did not desire BCS. Several studies have shown higher appearance evaluation and body-area satisfaction after bariatric surgery and BCS [20,23,32,45]. Our "desire" population had more concerns about their body, felt less attractive, and were less satisfied with their appearance compared with patients who had no desire for BCS and patients who already had BCS. The characteristics of the D group (negative body image and more depressive symptoms) are known to negatively affect bodyweight in patients with obesity [28–33].

Surprisingly, the patients who had undergone BCS showed some similarities with the patients who desired BCS. They both show higher appearance concerns and were both more preoccupied with overweight stigmata. Research has shown that after bariatric surgery and body contouring, appearance evaluation and body area satisfaction improve, but the overweight preoccupation might remain [20,23]. Thus, it could well be that the patients who desire BCS and the patients who have had BCS are basically the same type of patients, but body image in the BCS group has improved partly as a consequence of the body contouring procedure(s). However, these data are correlational, and therefore causal conclusions cannot be drawn.

Interestingly, more than a quarter of the studied patients did not have a desire for BCS; this group differs considerably from patients who already had BCS and the patients with a desire for BCS. These patients are less focused on their appearance and less preoccupied by overweight cognitions, even though they had the lowest weight loss and highest current BMI. Patients with a desire for BCS were even more preoccupied although they lost more weight and had a comparable BMI.

In the group with a desire for BCS, %TWL, depressive symptoms, appearance evaluation, and body area satisfaction were all significantly correlated. Higher weight loss was related to less depressive symptoms and a more positive body image. In all 3 groups, more positive feelings of physical attractiveness and higher satisfaction with the body were related to fewer depressive symptoms. Thus, even in the population without a desire for BCS, a more negative body image is related to negative effect, as in the obese (prebariatric) population [28,30].

Our hypothesis was that, like in patients with obesity, body image would partly mediate the relationship between weight loss and depressive symptoms in the postbariatric patients who had not undergone BCS [30,31]. Our results show that only in the patients who have a desire for BCS is the association between %TWL and depressive symptoms indeed partially mediated by body image: a higher weight loss was related to less depressive symptoms via a more positive body image. This was independent of sex and BMI before bariatric surgery. These results show the close relationship among weight, negative affect, and body image. This is the first step into analyzing the pathways by which patients who undergo BCS might have better weight loss maintenance.

The 3 groups of patients had a similar follow-up time, and the number of patients who underwent RYGB was equal. However, BMI before bariatric surgery was significantly different among the groups. Although this might have influenced preoperative body image and depressive symptoms, we cannot be certain about this because preoperative data collection was not part of this study.

A weakness of the present study is its cross-sectional design, making it impossible to draw conclusions about the causal nature of the associations. As a consequence of the cross-sectional nature, we have no knowledge of the body image and depressive symptoms before bariatric surgery. In addition, it could be discussed that we did not assess the actual amount of overhanging skin. However, our goal was to show the differences in the psychological consequences of the experience of excess skin in the postbariatric population. Moreover, research has shown that estimating excess skin is very difficult and does not correlate with the perception of the patient [46].

A strength of this study was the large number of participants and the relatively high response rate of this nationwide postbariatric population, with almost no differences between the included and excluded population.

Conclusions

This study shows that postbariatric patients differ in general body satisfaction. It seems that some postbariatric patients are rather satisfied with their bodies without BCS, while another group is not happy and desires BCS. The study further shows that body image is an important indicator of a patient's wellbeing after bariatric surgery, independent of the desire for BCS. However, body image has not been a standard part of outcome analysis in this population, and until recently there was no specific questionnaire to assess body image in the (post)bariatric patient. It is therefore unknown whether patients with a preoperative negative body image are also the patients who desire BCS the most and who will also benefit the most from it.

Body image should be considered an outcome parameter in assessing health-related quality of life in postbariatric patients. Future research should focus on body image both before and after bariatric surgery and study the pathway by

which BCS improves long-term weight loss maintenance. It might also be of interest to find out whether interventions that increase body satisfaction should be part of pre- and postoperative care in this group of patients.

Disclosures

The authors have no commercial associations that might be a conflict of interest in relation to this article.

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